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ABSTRACT

In all educational settings, electronic media are pervasive and increasing in popularity because of the speed of transmission and searching of information files. However, in the case of popular media--such as magazines, books, and newspapers--little importance is placed on the speed of transmission, and conversion to electronic books or magazines will probably not occur rapidly. In fact, there is evidence that electronic communication technologies are prolonging the life of popular reading material because of savings in labor and production costs. Newspapers also use electronic technology, and could provide a preferable alternative to television news--a technological medium that trivializes issues and compresses stories to avoid boring mass audiences. Studies have reported the existence of a negative impact by television on academic achievement, in contrast to the positive effects on achievement produced by reading. Yet television is only one of several electronic technologies, and newer media, such as videotex, contain the potential to counteract television effects by turning away from the passive viewing of pictorial images and turning to individual study and contemplation of the written word. (Fifteen footnotes are appended.) (MM)

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New Electronic Media, Popular Reading Materials, and Converging Communication Technologies

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New Electronic Media, Popular Reading Materials,
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The first computer data bases were developed in the late 1960's, with MEDLINES pioneering the use of computerized date that saved researchers from having to manually search Index Medicus for citations to medical literature. MEDLINES was followed by Psychological Abstracts online, then by Chemical abstracts, and ERIC, and by hundreds of other files now available to librarians and students and researchers. At that time I worked in a small liberal arts college, where librarians were more often asked to find translations of the Iliad and Odyssey, rather than to search computerized data bases. But even at that library, electronic technologies soon made an impact on cataloging procedures and reference work. In twenty years we have seen those initial experiments grow, until, today online computer catalogs are replacing card catalogs in public libraries as well as in academic libraries, electronic mail and facsimile are replacing paper communications for interlibrary loan, personal computer labs sprout like zucchini beds in all types of libraries, and the latest rage is CD-ROM, the optical disk that seems to be everywhere in the news these days because of its ability to store and search vast amounts of index date and text.

Experts who follow electronic publishing believe, like F.W. Lancaster, that by the year 2000 scientists will be working in a paperless society;[1] that is, in ten more years technologies like CD-ROM and personal computers and videotex will be used to compose research reports, journal articles, and books, and the results of research will be distributed to readers electronically; the final reading formats no longer will be paper books and journals, but instead floppy disks, laser cards, and online terminals will be ubiquitous. Already some scholarly journals are available only online and not in paper, and there is talk about placing journals and books on CD-ROM where they would be read on monitors rather than on printed pages of text.

So everywhere we look in educational settings, electronic media are pervasive and increasing in popularity because of the speed of transmission and searching of information files. It is much, much faster for most people to use the online service of Science Citation Index, than it

is to search the complicated printed indexes, just as it is much faster to send messages through electronic mail networks rather than to post a letter, or to publish a journal electronically rather than having to print, bind, and mail paper issues. However, in the case of popular media no such importance is attached to speed of transmission, and we are at approximately the same stage with popular reading materials now as we were with scientific imformation twenty years ago. We are just beginning to see experiments with book clubs testing laser cards as substitutes for printed books, and videotex is now available for a wide range of entertainment and information services, from travel, to stock market quotations, to dating services and newspaper articles. Already, public libraries are reporting that audiocassettes and videocassettes of films are among their most popular and most heavily used materials. However, despite the popularity of cassettes, change is coming very, very slowly to popular books and magazines and newspapers. And there is no guarantee that these popular entertainment materials will undergo widespread conversion to electronic formats anytime soon. Many videotex services have ceased operations after spending millions of dollars on research and testing. AT&T, CBS, IBM, and other corporations still believe videotex will become the undisputed communications success for the 21st century, but it remains to be seen whether readers will tolerate television screens or computer monitors as substitues for the printed page and the convenient and easy to read book. Those of us who have used microfilm readers for long stretches, or who have sat straining to read video display terminals, are not quite as ready as F. W. Lancaster to jump on the electronically driven bandwagon.

We may see extensive conversion to electronic magazines and books in coming decades, but the transition probably will not occur rapidly or in wholesale fashion. In fact, there is considerable evidence that electronic communication technologies are prolonging the life of popular reading materials in paper. And they are accomplishing this by offering impressive savings in production costs. Book manufacturing is a very labor intensive industry. Copyediting and proofreading stages are expensive. Text must be typeset, another costly process, then proofread again, printed and bound, distributed and sold and stored for future readers. Of the

total cost of producing a printed book, estimates place about 85% of the direct costs of production on editorial and typesetting stages. This area is where electronic technology can play an increasingly important role. When text is composed on a microcomputer the author may forward a completed disk to the publisher, who utilizes another microcomputer to edit and proofread the final version, which is submitted again electronically to a typesetter whose computer automatically sets type for the finished pages of text. The savings in labor are very significant at the front end of this process, cutting into that 85% of total costs. Interestingly, the publisher's consultant, Leonard Shatzkin, claims that "Books today can be prepared with one-tenth of the labor required thirty years ago. A book which routinely took four months or six can now be prepared in three weeks, in two if the author uses a word processor."[2]

Newspaper publishers use this type of computerized composition throughout the U.S. today, and that is why so many of the early videotex services offered newspapers. The data was already available for transmission in digital form, and Knight Ridder of the New York Times would be happy to see AT&T wire your home television set so the text of the daily newspaper would be read line by line, instead of watching Dan Rather read a teleprompter. I for one would find videotex newspapers to be a vast improvement over the usual television newscast of that day's train or plane wreck, or warehouse fire, or subway stabbing. There is a vast research literature on the mechanics and effects of television news, and most of this literature is caustic. For example, Mathew Smith believes that "TV news is based more on what people want to watch than on what is newsworthy . . . I think by now we know what an airplane crash is, we know what a fire is, we don't need all that. What we really need is why in a civilized society is there so much crime, so much violence. But that would be boring to the audience TV has created for itself."[3]

Neil Postman, in his engrossing book, Amusing Ourselves to Death, calls television a technological medium that presents information in a simplistic, non-substantive, non-historical context, "that is to say, information packaged as entertainment."[4] This is made especially unpalatable by the self-importance network news divisions place on their role in the nation's life, a minor example of which is Ted Koppel producing night-after-night various talking heads, who in a mere half-hour attempt to resolve issues of nuclear disarmament, the AIDs epidemic, or similar conundrums deserving detailed, substantive examination. Television, seemingly of necessity,

trivializes issue after issue, compressing stories into brief episodes to avoid boring the homogeneous mass audience. Steve Daly contends, "There is a rogue genre in television newsgathering that invests the superficial with meaning while dismissing the significant. Perhaps it is because television is not a content medium; from SDI to Sean Penn, everything carries about the same weight."[5]

My only argument with Daly is over the expression "rogue Genre," as if television news, in general, is not more obsessed with images than with content. For television the riveting image is critical, and what better film to catch the eye than a city torn by tornado, a refinery on fire, or a train wreck, notwithstanding the audience has seen the same scenes on scores of other occasions. David Mamet describes the problem with customary genius. "Television people who put out a news special on nuns being trampled to death by elephants would turn it into a series if the viewer response were great enough."[6]

Television newscasting and the capability of various media to supply information has been examined in detail by mass communications researchers. The Roper Organization's public opinion polls found that 95%of the American public obtains most of its information about current events from the mass media. And television far outdistances newspapers, radio, and magazines as the number one source of news. Not only is television cited as the main source of news, but it also is cited by the general public to be the most believable (credible) source of news, enjoying a two-to-one advantage over newspapers.[7] Yet, ominously, analysts have found that regular newspaper reading leads to considerably greater knowledge about current affairs than does television.[8] In studies where print sources were compared to television, only two analyses were found to indicate a positive relationship between television viewing and obtained knowledge.[9] In most other studies, the television-knowledge relationship hovered near zero.[10]

Some research has disputed the results of these studies,[11] but the weight of evidence falls in favor of print media whose format and content are not primarily centered on action and images to the detriment of complex issues. The authors of one study argue that, "Network news may be fascinating, It may be highly entertaining. But it is simply not informative."[12] Because television news concentrates on exciting visuals, stories often involve relatively minor issues of the day. And viewers

who typically utilize television as the chief source of information acquire a "fragmented, nonrepresentative view of the world.

Gallup and Roper polls have demonstrated the appalling lack of knowledge Americans bring to bear on current events and history. Sixty per-cent of people asked to name their local congressman can not do so.[13] Authors of recent best sellers have documented this surprising ignorance and cultural illiteracy. For example,

> Two-thirds of the seventeen year old students tested could not place the Civil War in the correct half century; a third did not know that the Declaration of Independence was signed between 1750 and 1800; half could not locate the half century in which the First World War occurred; a third did not know that Columbus sailed for the New World before 1750; three-fourths could not identify Walt Whitman or Thoreau or E.E. Cummings or Carl Sandburg. And one half of our high school seniors did not recognize the names of Winston Churchill or Joseph Stalin.[14]

Other studies report the existence of a negative impact by television on academic achievement. In contrast, reading produces positive effects on achievement. In fact, one researcher stated categorically that "television offers no benefit toward educational achievement. The thousand hours each year the average American student spends in front of a TV set is scholastically unproductive. And other research confirms that our society seems to learn very little about the outside world or about history from the countless hours we spend watching television.

Fortunately, however, television is only one of several electronic technologies. Newer media contain the potential to counteract television effects, and to make many of Marshal McLuhan's ideas seen dated and irrelevant. What is especially interesting about videotex is how this medium presents news in a textual, rather than a pictorial fashion. The audience obtains information not by looking at film of car accidents and assorted disasters, but instead by reading text as if the service were Newsweek or the New York Times. The service here, however, is not a print medium. In fact videotex presents text on a monitor, which often is a television screen wired to recieve videotex. Ironically users of videotex read text on a monitor screen, just as with users of CD-ROM and electronic mail. They do not stare passively at pictorial images, but instead read word by word through sections of text. Return to the era of concentrated individual study and contemplation, and away from McLuhan's tribal, television world

of illusion and fantasy; away from the likes of Oliver North who appears to the television audience to be a mythic hero, but whose words when set down in cold type and read one by one for rational content compare very poorly with the written memoirs of Ulysses Grant. If it fulfills the predictions made for it, videotex may become a major player in telecommunications of the coming century, and it may pave the way for transmission of novels, plays, poetry, and short stories to also be broadcast on electronic networks. The great obstacle to this happening with popular reading materials, however, is Moore's Law, which goes something like this: "An information retrieval system will tend not to be used when it is more painful and troublesome for a customer to have information, than for him not to have it.[15] The activity of reading from a printed page is often very pleasurable, even though it requires considerable exertion with cognition and accompanying eye movements. When you alter such a complex activity by substituting a microfilm reader or a computer moniter, more demands are placed on neuro-muscular effort, and enjoyment falls off rapidly. For example, posture usually is restricted, eyestrain becomes a severe problem, and mobility is blocked. This is why reading microfilm has been compared to kissing through a pane of glass. And the same may hold true for reading recreational materials on computer terminals or TV sets. It is true that television sets are available now with much better optics for reading text, and laser crystals are available for portable lap screens so that readers can use laser cards or CD-ROM. And if videotex finally succeeds, it probably will open the door for books and magazines to be transmitted electronically and to be read also on TV screens or monitors. The single most important issue for popular reading materials, however, is the pleasure they afford. If readers do not enjoy popular materials in electronic formats as much as they do printed books, then publishers will ignore CD-ROM and other difficult to read formats and will continue to produce paperbacks. And thus the idea of a paperless society is still a dream. Rather than a paperless society, we may witness a long transition period in years to come, where academic libraries buy a large percentage of educational material in electronic formats, but in public libraries conversion will occur much more slowly with paper holding its own for many years to come.

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